Institut de la statistique du Québec

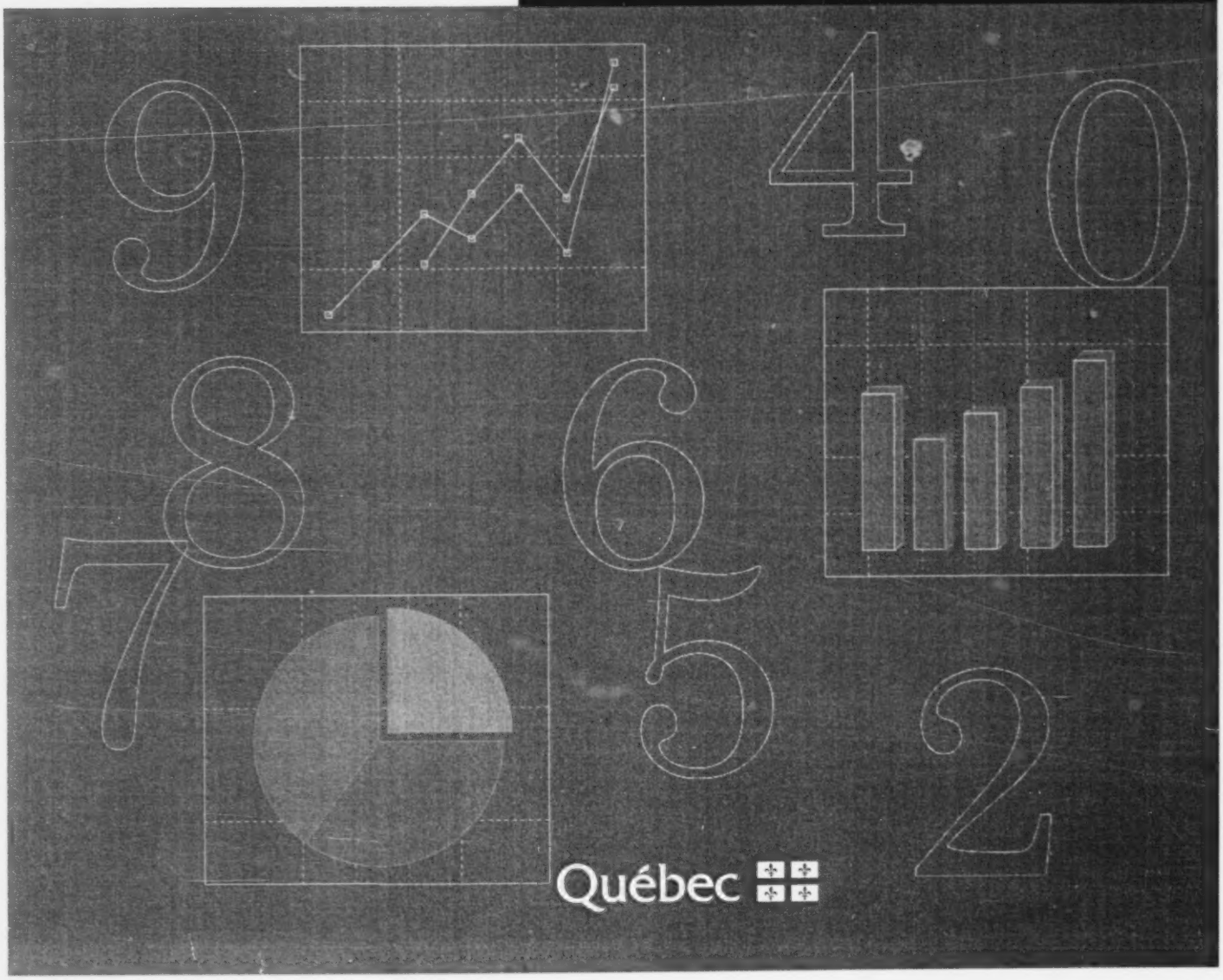
LONGITUDINAL STUDY OF CHILD DEVELOPMENT IN QUÉBEC (ÉLDEQ 1998-2002)

5-MONTH-OLD INFANTS

Parents' Health and Social Adjustment

COLLECTION
Health and Well-Being

Volume 1, Number 9



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For further information on the *Institut de la statistique du Québec (ISQ)* (Québec Institute of Statistics) and the statistics available in its databases, contact:

Institut de la statistique du Québec
200 chemin Sainte-Foy
Québec, Québec
Canada G1R 5T4
Tel.: (418) 691-2401 or
Tel.: 1-800-463-4090 (toll-free)

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May 2000

Forward

Similar to what has been observed in the majority of industrialized nations over the past twenty years, Québec and Canada have seen a significant increase in the costs related to maladjustment, particularly in young people. The Longitudinal Study of Child Development in Québec (*l'Étude longitudinale du développement des enfants du Québec*) (ÉLDEQ 1998-2002) being conducted by *Santé Québec* (Health Québec),[1] a division of *l'Institut de la statistique du Québec (ISQ)*[2] (Québec Institute of Statistics) in collaboration with a group of university researchers, will provide an indispensable tool for action and prevention on the part of government, professionals and practitioners in the field, who every day must face maladjustment in children.

More precisely, a major purpose of this longitudinal study of a cohort of newborns is to give Québec a means of preventing extremely costly human and social problems, such as school dropout, delinquency, suicide, drug addiction, domestic violence, etc. Similar to what is being done elsewhere (in the UK, New Zealand, the US), *Santé Québec* and a group of researchers have designed and developed a longitudinal study of children 0 to 5 years of age (2,223 children in this study and 600 twins in a related one). It will help gain a better understanding of the factors influencing child development and psychosocial adjustment.

The general goal of ÉLDEQ 1998-2002 is to learn the PRECURSORS, PATHS and EFFECTS, over the medium and long terms, of children's adjustment to school. ÉLDEQ is the logical extension of the National Longitudinal Study of Children and Youth (NLSCY, Canada). These Québec and Canada-wide longitudinal studies are both comparable and complementary. They employ distinct survey methods, and use different techniques to obtain the initial samples. Though many of the instruments are practically identical, about a third of those being used in ÉLDEQ are not the same.

This first report casts light on the enormous potential of the data generated by this study. From the descriptive analyses of the results of the first year of the study to the longitudinal analyses of subsequent years, there will be an enormous wealth of data. With updated knowledge on the development of the cohort of young children, the annual longitudinal follow-up will respond to the needs which the *ministère de la Santé et des Services Sociaux du Québec - MSSS* (Ministry of Health and Social Services), who financed the data collection, expressed in both the Report of the Working Group on Youth (*Rapport Bouchard, 1991, Un Québec fou de ses enfants* - the Bouchard Report, 1991, A Québec in Love with its Children) and the policy papers entitled *Politique de la santé et du bien-être, 1992* (Health and Well-Being) and *les Priorités nationales de santé publique 1997-2002* (Public Health Priorities 1997-2002).

Director General

Yvon Fortin

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1. Certain French appellations in italics in the text do not have official English translations. The first time one of these appears, the unofficial English translation is shown immediately after it. Following this, for ease in reading, only the official French name appears in the text in italics, and it is suggested the reader refer to the Glossary for the English translation.

2. *Santé Québec* officially became a division of the *ISQ* on April 1, 1999.

The authors of Volume 1 Number 9 of ÉLDEQ 1998-2002 are:

Part I : Lifestyle Habits and Health Status

Christa Japel, Richard E. Tremblay and Pierre McDuff *Groupe de recherche sur l'inadaptation psychosociale chez l'enfant (GRIP), Université de Montréal* (Research Unit on Children's Psychosocial Maladjustment, University of Montréal)

Part II : Social Adjustment

Mark Zoccolillo, *Hôpital général pour enfants, Département de psychiatrie, Université McGill* (Montreal Children's Hospital, Department of Psychiatry, McGill University) and *Groupe de recherche sur l'inadaptation psychosociale chez l'enfant (GRIP), Université de Montréal*

With the technical assistance of:

Martin Boivin, *data processing, Direction Santé Québec, ISQ*
France Lozeau, *publications layout, Direction Santé Québec, ISQ*

External readers:

Jean-François Saucier, *Département de psychiatrie, Hôpital Ste-Justine* (St. Justine's Hospital)
Lise Serbin, Centre for Research in Human Development, Concordia University

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ÉLDEQ 1998-2002 is supervised by:

Mireille Jetté, Coordinator
Hélène Desrosiers, Research Agent
Richard E. Tremblay, Director of ÉLDEQ 1998-2002
Josette Thibault, Research Agent

For further information on the contents of this publication, contact

Direction Santé Québec
Institut de la statistique du Québec
1200 McGill College Ave., Suite 1620
Montréal, Québec
Canada H3B 4J8
Telephone: (514) 873-4749 or
Telephone: 1 800 463-4090 (toll-free)
Fax: (514) 864-9919
Website: http://www.stat.gouv.qc.ca

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ZOCCOLILLO, M. (2000). « Santé et adaptation sociale des parents, section II - Adaptation sociale » dans *Étude longitudinale du développement des enfants du Québec (ÉLDEQ 1998-2002)*, Québec, Institut de la statistique du Québec, vol. 1, nº 9.

Caution:

Unless indicated otherwise, "n" in the tables represents data weighted to the size of the initial sample.

Because the data were rounded off, totals do not necessarily correspond to the sum of the parts.

Unless explicitly stated otherwise, all the differences presented in this report are statistically significant to a confidence level of 95%.

To facilitate readability, proportions higher than 5% were rounded off to the nearest whole unit in the text, and to the nearest decimal in the tables and figures.

Weighting and the complex sample design were taken into account in calculating the results and their precision. The precision of the estimates of proportions was calculated using a mean design effect. This was also used for the chi-square tests, except in questionable cases for which the SUDAAN software program was used. In all other analyses, SUDAAN was used. Basic hypotheses, such as the normality of the data, were verified before applying the selected statistical tests.

Symbols

... Not applicable (N/A)
.. Data not available
– Nil or zero
p < Refers to the threshold of significance

Abbreviations

CV	Coefficient of variation
Not avail.	Not available
not signif.	Not significant

Acknowledgments

Santé Québec recognizes that the development and implementation of the Longitudinal Study of Child Development in Québec (ÉLDEQ 1998-2002) flows directly from the synergy of effort and professionalism of many people throughout the whole process of mounting a survey of this size. Since 1995, individuals, various groups and organizations, a survey firm and the staff of *Santé Québec* have become indispensable links in making this ambitious project a reality - the first annual longitudinal survey of Québec infants.

A major characteristic of this project is that a pretest and survey are conducted every year. To accomplish this, we must annually: 1) make two sets of instruments (pretest and survey), 2) conduct two data collections, 3) analyze two sets of data, and 4) produce two types of communications materials. The results of each pretest means fine-tuning and developing instruments for the survey, which follows 17 months later. The results are sent to the parents (highlights), published in reports, and communicated to the scientific community and the public at large. The professionals and staff involved in collecting the data, as well as those involved before and after, must put their nose to the grindstone every year. We cannot over-emphasize our profound recognition of the incredible, concerted effort they are putting into this project over an 8-YEAR period, from the first pretest in 1996 to the final report to be published in 2004!

First, it must be said that without Daniel Tremblay, Director of *Santé Québec* (now part of the *ISQ*) since 1994, Christine Colin, Assistant Deputy Minister responsible for Public Health 1993-1998, Aline Émond, Director of *Santé Québec* 1986-1993, Richard E. Tremblay, Director of the ÉLDEQ research project, and Marc Renaud, President of *le Conseil québécois de la recherche sociale - CQRS* 1991-1997. ÉLDEQ 1998-2002, also known as "In 2002... I'll Be 5 Years Old!," would have never seen the light of day. In turn and together, they developed, defended and obtained the financing for this study. Thank you for your indefatigable tenacity.

A warm thanks to all the researchers and the support staff of their respective research groups, whose determination over the years has never wavered. Putting their research grants together every year has contributed to the development of the instruments, analysis of the data and publication of the copious results.

I would like to thank Lyne Des Groseilliers, ÉLDEQ's statistician since 1996, Robert Courtemanche, statistical advisor, and France Lapointe, ÉLDEQ's statistician 1995-1996. These three colleagues in the *Direction de la méthodologie et des enquêtes spéciales* (Methodology and Special Surveys Division) (*ISQ*) managed, with great skill, to set the signposts and navigate the somewhat winding course of this large-scale survey first.

A very special thanks to all the master designers of the National Longitudinal Study of Children and Youth (NLSCY, Canada). Without their expertise, advice and generosity, our survey would never have been accomplished. In many senses of the word "modeling," ÉLDEQ has learnt a lot from the NLSCY.

We would also like to extend out gratitude to the staff of the *Groupe de recherche sur l'inadaptation psychosociale chez l'enfant - GRIP* (Research Unit on Children's Pyschosocial Maladjustment) at the University of Montréal. Without their expertise, some of our survey instruments would have never been computerized to such a high level of quality.

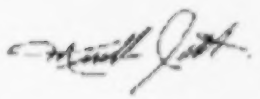
We would like to thank the personnel in the *Service de support aux opérations de la Régie de l'assurance-maladie du Québec - RAMQ* (Operations Support Section of the Québec Health Insurance Board). Without their efficiency, fewer letters of introduction would have found their way to the correct addresses of respondents.

Our sincerest thanks go to our survey firm, *Bureau d'interviewers professionnels (BIP)*. Since 1996, this polling company has been responsible for data collection in the pretests and surveys, and follow-up of families both inside and outside of Québec. Lucie Leclerc, President of *BIP*, has set the standard of quality for our numerous and complex data collections. Assisted by Véronique Dorison, she has instilled in her interviewers a great sense of respect for the respondent families, as well as a rigourous regard for all the norms governing this first-of-a-kind survey in Québec.

A big thank-you to the directors-general, directors of professional services, and staff of the medical records departments of some 80 hospitals in the province who accepted to collaborate in our study at a time when resources were rare and time was at a premium, and when the medical records departments in many hospitals were merging or in the process of doing so. Their support was exceptional. Birthing centres also graciously accepted to participate in this first Québec longitudinal study of children. A special thanks to Julie Martineau, medical records specialist, who contributed to the analysis of indispensable medical information by ensuring very rigourous coding of the data, which often lay concealed in the medical files of the infants and their mothers.

It goes without saying that the staff of *Santé Québec* Division directly attached to ÉLDEQ 1998-2002 are the cornerstone of its success from practically every point of view. Special thanks for their ongoing contribution and constant hard work go to Hélène Desrosiers and Josette Thibault, responsible respectively for analysis of the data and creation of the measurement instruments; Martin Boivin, Rolland Gaudet and Gérald Benoît, who constantly pushed the limits of what computer software can do in terms of programming and data processing; Suzanne Bernier-Messier and Diane Lord, who give meaning to the word versatility, who must organize, code and manage incredible quantities of data to ensure the progress of the study. Not directly attached to the team but who made extremely important contributions are: France Lacoursière, France Lozeau and Thérèse Cloutier, who put the finishing touches to the *Santé Québec* "look" in the survey instruments, reports and conference publications; Lise Ménard-Godin, who conducted fruitful literature searches and advised on many aspects of the collection instruments. The hard work, constant availability, ability to adapt, and finely-honed skills of the people working on this project match the enthusiasm that all our partners have demonstrated in making this study a resounding success.

Finally, I would like to extend a very special thank-you to the 2,223 families who responded to our survey. Thank you for the trust you have shown in *Santé Québec*, our partners and collaborators. Thanks to your participation, your children have become the veritable stars of ÉLDEQ 1998-2002, and are making it possible, in the short term, to gain a better understanding of psychosocial adjustment in children. In the medium and long terms, they will likely be in large part responsible for the establishment of early detection programs, better designed prevention programs, and more effective interventions for such an important clientele - all of Québec's children.



Mireille Jetté
Project Coordinator
Santé Québec Division, *ISQ*

Preventing Social Maladjustment

It suffices to consider the costs engendered by behavioural problems in children - school dropout, delinquency, alcoholism, drug addiction, family violence, mental disorders and suicide - to conclude that they largely surpass what a modern society can accept, morally and economically. Faced with the enormity of these problems, the first reflex is to provide services to these people which will, ideally, make the problems disappear, or at the very least, lessen their severity. For many years we have tried to offer quality services to children and adults who suffer from antisocial disorders, alcoholism, drug addiction, depression, and physical or sexual abuse. However, in spite of enormous investment, these curative services are far from being able to respond to the demand.

Although the idea of early intervention as a preventive measure can be traced at least as far back as ancient Greece, the second half of the 20th century will certainly be recognized as the dawn of the field of social maladjustment prevention (Coie *et al.*, 1993; Mrazek & Haggerty, 1994). Numerous programs have been developed for adolescents and teenagers to prevent school dropout, delinquency, drug addiction and suicide. Scientific evaluations of these programs have been far too few in number, but they tend to demonstrate that it is extremely difficult to help those most at risk in this age group (Rosenbaum & Hanson, 1998; Rutter, Giller & Hagell, 1998; Tremblay & Craig, 1995). It is becoming increasingly clear that the factors which lead to serious adaptation problems are in place long before adolescence. Hence the idea that the prevention of social adaptation problems should start at least during childhood, and preferably right from pregnancy (Olds *et al.*, 1998; Tremblay, LeMarquand & Vitaro, 1999). These principles are clearly outlined in the objectives of the *Politique de la santé et du bien-être* (Policy on Health and Well-Being) and *les Priorités nationales de santé publique* (Priorities for Public Health) set by the government of Québec (ministère de la Santé et des Services sociaux, 1992; 1997).

The Need to Understand Early Childhood Development

If the field of maladjustment prevention appeared at the end of the 20th century, it has certainly come on the heels of child development. "*Émile,*" by Jean-Jacques Rousseau, needs to be re-read in light of recent studies to realize just to what degree it is impossible to understand the complexity of child development, and therefore the means of preventing deviant paths, simply by reflection or introspection. Although considerable knowledge has been acquired in the neurological, motor, cognitive, affective and social development of children, what really hits home is that Jean-Jacques Rousseau and his followers in education seemed to have had more certainty about the ways of educating children than we do today.

Progress in child development research has made us realize that things are not as simple as we can or would like to imagine. We have obviously all been children, and most of us have become parents, indeed, relatively well-adjusted ones. But we still do not clearly understand when, how and why adjustment problems appear, and above all, how to prevent and correct them.

Our ignorance is obvious when we examine the debates among specialists on the role of parents in the development of maladjustment problems in children. Some suggest that social maladjustment in children is largely determined by genetic factors (Bock & Goode, 1996; Rowe, 1994). Some accentuate economic factors (Duncan & Brooks-Gunn, 1997). Other researchers attribute a determining role to peer influence (Harris, 1998; Harris, 1995; Vitaro *et al.*, 1997). These larger questions lead to narrower ones which focus on particular aspects - the role of fathers in childhood maladjustment, the impact of alcohol and cigarette consumption during pregnancy, the effect of prenatal and birthing problems, the importance of breast feeding and diet, the role of sleep, cognitive development, temperament, and so on.

The majority of these questions are at the heart of the daily concerns of parents, grandparents, educators, family service providers, and legislators. What can we do to maximize the development of our children, to prevent severe psychosocial maladjustment? What should we do when problems begin to appear, when pregnant mothers, or fathers themselves have

a long history of disorders? The answers to these questions obviously have an effect on the policies put forth by Québec government Ministries such as *ministères de la Famille et de l'Enfance* (Family and Child Welfare), *de l'Éducation* (Education), *de la Santé et des Services sociaux*, *de la Solidarité sociale* (Social Solidarity - formerly Income Security (Welfare)), *de la Sécurité publique* (Public Security), *de la Justice* (Justice), and *le ministère de la Recherche, Science et Technologie* (Research, Science and Technology).

The Contribution of ÉLDEQ 1998-2002

The Longitudinal Study of Child Development in Québec (ÉLDEQ 1998-2002) was conceived in order to contribute to our knowledge of the development of children in their first 5 years of life. The main goal is to gain a better understanding of the factors, in the years of rapid growth, which lead to success or failure upon entry into the school system. The goal of the second phase (if approved) is to better understand development in elementary school, in light of development in early childhood.

We know that this survey cannot be a definitive one on child development in Québec, but it is the first representative study of a provincial cohort of children who will be measured annually from birth to entry into the school system. It specifically aims at understanding the development of basic skills needed for educational success.

Although the effort to set up this study began in 1989, the first data collection coincided with the Québec government's implementation of its *Politique Familiale* (Policy on Families). The policy has virtually the same objectives as our study:

> "These services for children 5 years and under should give all Québec children, whatever the socioeconomic status of their parents, the chance to acquire and develop the skills that will allow them to succeed in school (1997, p. 10)."

On March 3 1999, in the speech opening the 36th session of the Québec legislature, Premier Lucien Bouchard confirmed that early childhood development was a priority for the government:

> "The theme that will dominate our actions this year, next year, and throughout our mandate, is youth... The priority...with regards to youth in Québec, begins with the family and childhood... This massive investment in early childhood... will give our children the best chance of success in the short, medium and long terms. It is our best asset against alienation and despair. It is our best preparation for personal, social and economic success."

Because of this historic coincidence, ÉLDEQ has the potential of becoming an invaluable tool for monitoring the effects of Québec's massive investment in early childhood which began in 1997. Thanks to the data collected by the federal government's National Longitudinal Study of Children and Youth (NLSCY, Canada), we will be able to compare child development in Québec with that elsewhere in Canada, before and after the implementation of Québec's new policy on the family.

However, our initial objectives are more modest. The 12 or 13 papers in this series present the results of our first annual data collection. They describe the characteristics of the families and children when the latter were 5 months old.[3] They cover sociodemographic characteristics, nature of the birthing process, health and social adaptation of the parents, family and couple relations, parent-infant relations, and characteristics of the 5-month-old, such as sleep, diet, oral hygiene, temperament, and motor, cognitive and social development. These data will eventually be compared to those on children the same age collected by the NLSCY in 1994 and 1996.

An Interdisciplinary, Multi-University Team of Researchers

This study saw the light of day because of the collaboration of many people. In the preceding pages, Mireille Jetté thanked a number of them. I would like to take advantage of this introduction to emphasize that the survey was set up and continues forward because of the dedication and hard work of a group of researchers from a variety of disciplines and universities. I would particularly like to thank Michel Boivin, School of Psychology at Laval University, and Mark Zoccolillo, Department of Psychiatry at McGill University,

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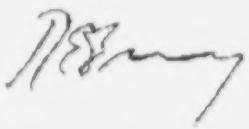
3 To simplify the text in this report, the phrase "5-month-old infants" will be used to refer to infants whose mean age was 5 months during data collection in 1998. In section 3.1.3 (Volume 1, Number 1), we explain why the infants were not all exactly the same age. As indicated in no. 2 of this series, 52% of the infants were less than 5 months, and 3.4% were 6 months of age or over.

who have been actively involved in this project since 1992. It was in that year that we prepared out first grant application for the Social Sciences and Humanities Research Council of Canada. A second group of researchers joined the team in 1993 and 1994: Ronald G. Barr, pediatrician, Montréal Children's Hospital Research Institute, McGill University; Lise Dubois, dietitian and sociologist, Laval University; Nicole Marcil-Gratton, demographer, University of Montréal and Daniel Pérusse, anthropologist, University of Montréal. Jacques Montplaisir, Department of Psychiatry, University of Montréal, joined the team in 1995. Louise Séguin, Department of Social and Preventive Medicine, University of Montréal and Ginette Veilleux, *Direction de la santé publique de la Régie régionale de la santé et des services sociaux de Montréal-Centre* (Public Health Department, Montréal-Centre Regional Health Board), joined in 1998. Three post-doctoral researchers have also made an important contribution. Raymond Baillargeon developed the task for measuring cognitive development. Christa Japel is the assistant to the scientific director for planning, analysis and presentation of the results. Heather Juby collaborates in the analysis of the data on couple and family history.

A Unique Confluence of Circumstances

A study such as this requires the coordination of many researchers over many years, enormous financial resources, and a long period of preparation. Though in the early 1990s the research team was convinced of the need for the survey, those responsible for the public purse had also to be convinced. We must therefore acknowledge the happy confluence of circumstances that allowed the players to take advantage of the opportunity at hand. When a number of civil servants in the *ministère de la Santé et des Services sociaux* understood the essential role of prevention, the creation of a committee on children and youth in 1991 led to an increased awareness of the importance of early childhood. At the same time, the president of the *CQRS*, Marc Renaud, had come to the same realization with his colleagues in the Population Health Program at the Canadian Institute for Advanced Research (CIAR). Aline Émond, the Director of *Santé Québec*, was ready to apply her formidable determination to work for the cause. For their part, Health Minister Jean Rochon and his Assistant Deputy Minister for Public Health, Christine Colin, aware of the importance and benefit of longitudinal studies on early childhood development, authorized the investment of large sums of money during a period of draconian budget cuts. This occurred at the same time as the federal government decided to create its own longitudinal study of children and youth (NLSCY). It is in this context that ÉLDEQ 1998-2002 materialized. Our survey also came to fruition because Mireille Jetté did everything in her power to make the researchers' dreams a reality, and Daniel Tremblay gave her all the support she needed by making various resources available for the project.



Richard E. Tremblay, Ph.D., M.S.R.C.
Chair of Child Development
University of Montréal

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Review of the Methodology

This analytical paper is one of a series presenting cross-sectional data collected on a large sample of 5-month-old infants surveyed in 1998. It reports on the first of 5 annual data collections on 2,120 children in Québec who will be studied until they are 5 years old. In the first year of data collection, the results on 2,223 infants were retained.[4]

The target population of the survey is Québec babies, singleton births only,[5] who were 59 or 60 weeks of gestational age[6] at the beginning of each data collection period, born to mothers residing in Québec, excluding those living in the Northern Québec, Cree, and Inuit regions, and on Indian reserves, and those for whom the duration of pregnancy was unknown. Due to variations in the duration of pregnancy and the 4 or 5 weeks allotted for each data collection wave, the infants were not all exactly the same age (gestational or chronological) at the time of the survey. Therefore, the children in Year 1 (1998) of the survey had a mean gestational age of 61 weeks - about 5 chronological months.

The survey had a stratified, three-stage sampling design, with a mean design effect for the proportions estimated at 1.3. To infer the sample data to the target population, each respondent was given a weight corresponding to the number of people he/she "represented" in the population. ÉLDEQ 1998 comprised eight main collection instruments which obtained data from the person who was closest to the baby (called the Person Most Knowledgeable - PMK), the spouse (married or common-law), the infant and the absent biological parent, if applicable. Given variation in the response rates to each instrument, three series of weights had to be calculated to ensure inferences to the population were accurate. Except for the Self-Administered Questionnaire for the Absent Father (SAQFABS) and a series of questions in the Computerized Questionnaire Completed by the Interviewer (CQCI) on absent fathers - the overall or partial response rates of which were too high - the results of all the instruments could be weighted. Therefore, the data presented here have all weighted to reduce the biases.

All data that had coefficients of variation (CV) 15% or higher are shown with one or two asterisks to clearly indicate the variability of the estimate concerned. In addition, if the partial non-response rate was higher then 5%, there is a note specifying for which sub-group of the population the estimate is less accurate.

Similar to any cross-sectional population study, the Year 1 part (5-month-old infants) of ÉLDEQ 1998-2002 has certain limits. However, the vast majority of the results are valid and accurate, and provide a particularly detailed portrait, for the first time, of 5-month-old infants in Québec.

Note to the reader: For more details on the methods, see Volume 1, Number 1 in the present series. Detailed information on the sources and justification of the instruments used in Year 1 of ÉLDEQ 1998-2002, and the design of the scales and indices used in this paper, are covered in Number 12, entitled "Concepts, Definitions and Operational Aspects."

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4. Though the results for 2,223 children were retained for the first year of data collection, 2,120 will be retained for the rest of the longitudinal study; the extra 103 were part of an over-sample used to measure the effects of the January 1998 ice storm.

5. Twins (twins births) and other multiple births were not targeted by the survey.

6. Gestational age is defined as the sum of the duration of gestation (pregnancy) and the age of the baby.

Parents' Health and Social Adjustment

Part I

Lifestyle Habits and Health Status

1. Introduction

The lifestyle habits of the parents and their physical and psychological well-being play a crucial role in child development, particularly in early childhood. For example, excessive consumption of alcohol, the psychotropic substance most consumed by the Québec population (Guyon *et al.*, 1995), affects the parents' capacity to appropriately respond to the needs of their children (Harmer *et al.*, 1999; Pihl *et al.*, 1998). Parental alcoholism puts the children at risk not only of abuse and negligence (Kotch *et al.*, 1999), but also of developing behavior problems such as attention deficit, conduct or anxiety disorder (Kuperman *et al.*, 1999). In Québec, alcohol appears to be associated with 30% of cases of violence towards children, while it is estimated that 50% of the victims of incest come from families affected by alcoholism (MSSS, 1992).

Tobacco smoke in the environment is toxic and can provoke respiratory problems in adults such as asthma (Greer *et al.*, 1993). Passive exposure to cigarette smoke seems to have an even stronger effect on growing children. A number of studies have shown that tobacco smoke in the environment is associated with a higher incidence of respiratory infection, asthma and otitis media in young children (Ilicali *et al.*, 1999; Lister & Jorm, 1998). Furthermore, maternal smoking during pregnancy can increase the risk of behavioural problems in children (Fergusson *et al.*, 1993; Wakschlag *et al.*, 1997).

The psychological well-being of the parents can also be an important risk or protective factor in the psychosocial adjustment of children. Depressed parents, for example, are usually withdrawn, fatigued, defeatist and pessimistic about the future. This can render them less available to respond to the needs of other members of their family. Maternal depression can compromise interaction with the infant and his social and affective functioning (Murray & Cooper, 1997; Weinberg & Tronick, 1998). Moreover, symptoms of depression in the mother are associated with a higher probability that a child will present problems with respect to attachment, behaviour, cognitive and affective development (Cicchetti *et al.*, 1997; Kaplan *et al.*, 1999; Kochanska *et al.*, 1997). However, the influence of paternal depression on the psychosocial adjustment of children remains unclear (Marchand & Hock, 1998; Shiner & Marmorstein, 1998).

The first part of this paper presents a profile of the lifestyle habits, general health status and psychological well-being of the infants' parents. These are examined in relation to various sociodemographic characteristics using chi-square tests. The social adjustment of the parents is the focus of the second part of this paper.

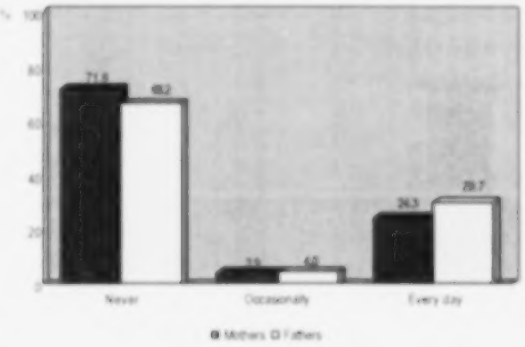
2. Lifestyle Habits of the Parents

In Year 1 of the *Étude longitudinale du développement des enfants du Québec*, the person closest to the infant (Person Most Knowledgeable - PMK) responded to the Computerized Questionnaire Completed by the Interviewer (CQCI), part of which was entitled the Adult Health section. This section, targeting both the PMK and her spouse/partner if applicable, contained questions on the general health status of the parent(s) and lifestyle habits such as smoking and alcohol consumption. Questions on psychological well-being were also presented to the PMK, who in virtually all cases (99.7%) was the biological mother of the infant. Information was available on 2,221 mothers and 2,018 fathers/spouses present in the household.[7] Data on symptoms of depression in the father were gathered from 1,855 fathers or spouses living in the household[8] who responded to the Well-Being of the Father section in the Self-Administered Questionnaire for the Father (SAQF).[9]

2.1 Smoking Habits

When parents were asked about their current smoking habits, nearly one in four mothers (24%) stated that they smoked daily, and approximately 4% reported smoking occasionally (see Figure 2.1). Among mothers indicating they smoked daily, about a third reported smoking 10 cigarettes or less a day. More than 4 in 10 (45%) indicated smoking between 11 and 20 cigarettes a day, and 19% reported smoking more than 20 cigarettes a day (data not shown).

Figure 2.1
Frequency of Smoking in Mothers and Fathers at the Time of the Survey, 1998



Source: *Institut de la statistique du Québec, ÉLDEQ 1998-2002.*

According to the what the PMKs or fathers themselves reported, 3 in 10 fathers smoked every day, whereas 4% smoked only occasionally. As to the quantity of cigarettes smoked by the fathers who reported smoking every day, one in five smoked at least 10 a day. Approximately 40% of fathers smoked between 11 and 20 cigarettes a day, and almost the same percentage (39%) more than 20 cigarettes a day (data not shown).

2.2 Alcohol Consumption

Analysis of the data on parental alcohol consumption revealed that the majority had consumed some in the 12 months preceding the survey. As shown in Figure 2.2, approximately 7 in 10 mothers (72%) and nearly 9 in 10 fathers (88%) had consumed alcohol at one time or another during this period.[10]

7. In most cases, the PMK responded to questions on the father/spouse. One in six fathers, however, responded themselves to the questions concerning them.

8. 99.3% of these respondents were the biological fathers of the infants.

9. These same questions were addressed to biological fathers not living in the household (Self-Administered Questionnaire for the Father Absent - SAQFABS). Given the low percentage of these questionnaires that were returned (less than 50%), the data were not weighted and are not presented here (for more details, see Numbers 1 and 2 in this series of analytical papers).

10. Data on alcohol consumption among the infants' mothers concern the 12 months preceding the survey. They do not indicate, however, if the mothers had consumed any during their pregnancy. Data on lifestyle habits during the pregnancy are presented in Part II of this paper and in No. 3 in this series.

2. Lifestyle Habits of the Parents

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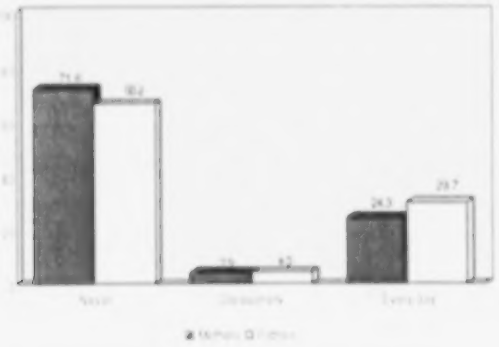

Source: Institut de la statistique du Québec, ELDEQ 1998-2002.

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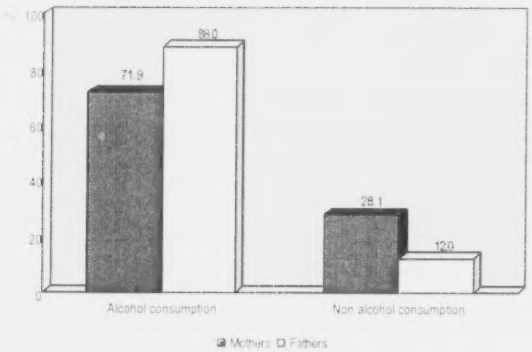
Figure 2.2
Alcohol Consumption in Mothers and Fathers in the 12 Months Preceding the Survey, 1998



Source: *Institut de la statistique du Québec. ÉLDEQ 1998-2002.*

Though it is generally recognized that moderate consumption of alcohol can have beneficial effects on cardiovascular health (Sacco *et al.*, 1999), alcohol abuse is a problem behaviour that affects not only the health of the consumer but also the well-being of his family.

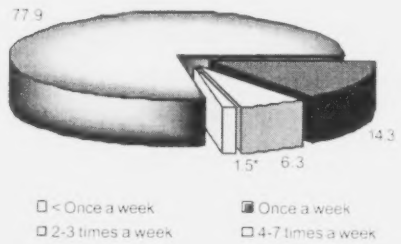
Excessive alcohol consumption is often defined by the number of drinks consumed per week. However, researchers are not in agreement as to the definition of alcohol abuse, a classification which according to various studies can vary from 10 to 12 to at least 28 drinks a week (see Pihl *et al.*, 1998). The frequency with which an individual consumes five or more glasses on the same occasion seems to be a more reliable measure of ascertaining the presence or absence of an alcohol problem (Conrod *et al.*, 1997).

Information on the frequency of alcohol consumption was obtained from responses to the following questions:

- "During the past 12 months, how often did you drink alcoholic beverages?"
- "How many times in the past 12 months have you had 5 or more drinks on one occasion?"

The responses of the parents to the first question are presented in Figures 2.3 and 2.4. Among mothers who consumed, nearly 8 in 10 (78%) indicated having consumed alcohol less than once a week in the 12 months preceding the survey, whereas less than 2% reported having done so 4 to 7 times a week.

Figure 2.3
Frequency of Alcohol Consumption (%) in Mothers in the 12 Months Preceding the Survey, 1998[1]

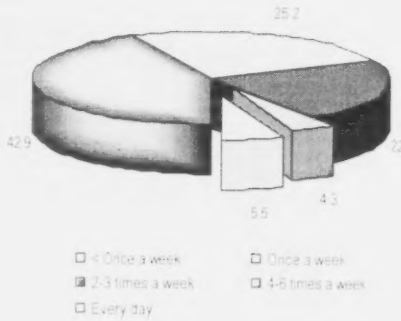


1. In mothers who had drunk alcohol.
* Coefficient of variation (CV) between 15% and 25%; interpret with caution.

Source: *Institut de la statistique du Québec. ÉLDEQ 1998-2002.*

Among fathers who had consumed alcohol in the 12 months preceding the survey, a little more than 4 in 10 (43%) had done so less than once a week. Slightly more than 1 in 20 (6%) had consumed alcohol 4 to 6 times a week, while a somewhat smaller proportion (4%) had done so every day (Figure 2.4).

Figure 2.4
Frequency of Alcohol Consumption (%) in Fathers in the 12 Months Preceding the Survey, 1998[1]



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Source: *Institut de la statistique du Québec. ÉLDEQ 1998-2002.*

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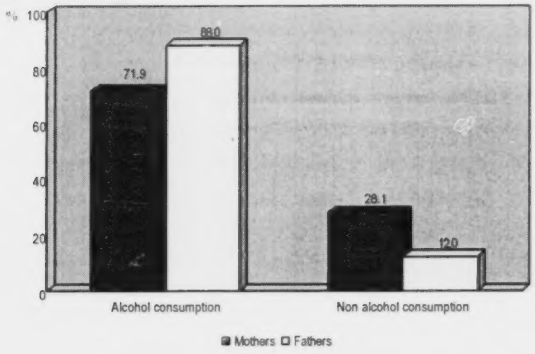
Alcohol Consumption in Mothers and Fathers in the 12 Months Preceding the Survey, 1998



Source: *Institut de la statistique du Québec, ÉLDEQ 1998-2002.*

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Information on the frequency of alcohol consumption was obtained from responses to the following questions:

- "During the past 12 months, how often did you drink alcoholic beverages?"
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The responses of the parents to the first question are presented in Figures 2.3 and 2.4. Among mothers who consumed, nearly 8 in 10 (78%) indicated having consumed alcohol less than once a week in the 12 months preceding the survey, whereas less than 2% reported having done so 4 to 7 times a week.

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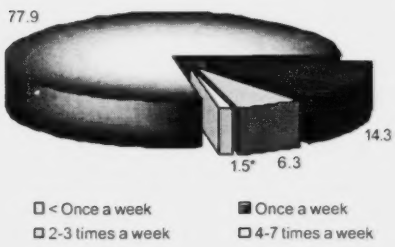

1. In mothers who had drunk alcohol.
* Coefficient of variation (CV) between 15% and 25%; interpret with caution.

Source: *Institut de la statistique du Québec, ÉLDEQ 1998-2002.*

Among fathers who had consumed alcohol in the 12 months preceding the survey, a little more than 4 in 10 (43%) had done so less than once a week. Slightly more than 1 in 20 (6%) had consumed alcohol 4 to 6 times a week, while a somewhat smaller proportion (4%) had done so every day (Figure 2.4).

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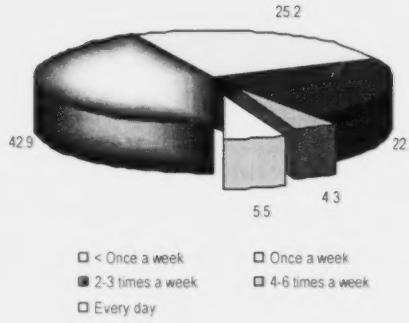
Frequency of Alcohol Consumption (%) in Fathers in the 12 Months Preceding the Survey, 1998[1]



1. In fathers who had drunk alcohol.

Source: *Institut de la statistique du Québec, ÉLDEQ 1998-2002.*

Responses of the parents to the second question indicated that the majority of the infants' mothers (85%) had never consumed 5 drinks or more on the same occasion in the 12 months preceding the survey. In contrast, one in two fathers (50%) had had 5 drinks or more on the same occasion at least once in the same period (data not shown). These data suggest that approximately three times more fathers than mothers had consumed excessive amounts of alcohol in the year preceding the survey. They also confirm that excessive alcohol consumption is significantly more frequent in men than in women (Guyon *et al.*, 1995; *Santé Canada* - Health Canada, 1999), even among parents of infants.

2.3 Lifestyle Habits and Parental Characteristics

The lifestyle habits of parents were not independent of some of their individual characteristics or those of their family environment. Smoking daily at the time of the survey, alcohol consumption in the 12 months preceding the survey and the consumption of five or more drinks on the same occasion at least once in the year preceding the survey are shown in Table 2.1 as they relate to certain parental and family characteristics.

Tableau 2.1

Daily Smoking and Alcohol Consumption in Mothers and Fathers, by Certain Sociodemographic Characteristics, 1998

	Daily smoking[1]		Alcohol consumption[2]		Consumption of 5 or + glasses on same occasion[2]	
	Mothers	Fathers	Mothers	Fathers	Mothers	Fathers
	%					
Age group[3]						
Under 20 yrs of age	51.9†		63.4		23.9*†	
20-24 yrs	35.8	43.3†	74.8	87.0	24.9	64.8†
25-29 yrs	20.2	31.6	70.6	90.6	12.9	54.8
30-34 yrs	20.9	26.0	74.2	88.2	11.3	48.8
35-39 yrs	17.9*	27.3	67.8	86.5	11.2*	40.3
40 yrs or +	21.9**	31.3	64.0	84.1	7.5**	40.0
Educational level						
No high school diploma	47.4†	50.3†	59.8†	83.1†	17.8	51.3
High school diploma	28.2	32.8	69.8	87.9	14.4	51.8
Vocational/technical diploma	24.4	32.8	76.3	85.9	16.5*	51.6
College (junior) diploma	14.2*	19.5	76.9	93.2	16.2	49.0
University degree	7.6*	11.2	79.4	90.6	11.8	43.5
Type of family						
Intact two-parent	20.5†	27.0†	72.6†	88.2	13.8	49.3
Step	43.7	48.6	77.3	86.9	18.8	47.9
Single-parent	35.6	--	60.2	--	18.3*	--
Low-income household[4]						
Yes	32.8†	43.2†	55.2†	73.8†	13.4	39.8†
No	21.1	26.3	78.6	92.6	15.6	53.0
Total						
n	**2,221**	**2,018**	**2,221**	**2,018**	**2,220**	**2,009**
%	**24.3**	**29.7**	**71.9**	**88.0**	**14.8**	**49.2**

Note : † indicates $p < 0.05$.

1. At the time of the survey.
2. In the 12 months preceding the survey.
3. Fathers under 25 years of age were grouped into one category because of small numbers.
4. According to the low-income cut-offs set by Statistics Canada for the reference year 1997 (based on 1992) (see No. 2 in this series of papers).

* Coefficient of variation (CV) between 15% and 25%; interpret with caution.

**Coefficient of variation (CV) higher than 25%, imprecise estimate for descriptive purposes only.

Source: *Institut de la statistique du Québec, ÉLDEQ 1998-2002.*

As Table 2.1 shows, more than half of mothers under 20 years of age (52%) smoked daily, and daily smoking decreased with age. In mothers 25 years of age and over, approximately one in five smoked daily. Compared to fathers 25 years of age and over, those under 25 showed a relatively high percentage of daily smokers (43% vs. 32% or less). In terms of education, the ÉLDEQ 1998 data revealed that approximately half of fathers and mothers with no high school diploma smoked daily, whereas this was the case for only 8% of mothers and 11% of fathers with a university degree. Smoking also varied with the type of family. While only 21% of mothers in intact two-parent families reported smoking daily, the percentage of mothers doing so increased to 44% in stepfamilies and 36% in single-parent families.[11] Similarly, smoking daily was significantly more frequent among fathers in stepfamilies (49%) than among those in intact two-parent families

11. However, the difference between stepfamilies and single-parent families was not significant at the threshold of 0.05.

(27%).[12] Finally, mothers and fathers in households below the low-income cut-off were significantly more likely to smoke daily than those in households with an income considered sufficient (Table 2.1).

The percentage of parents who had consumed alcohol in the 12 months preceding the survey did not significantly vary with age group. However, more educated mothers and fathers were more likely to have consumed alcohol in this period than less educated ones. As to type of family, the consumption of alcohol seemed more frequent among mothers in intact two-parent families (73%) or stepfamilies (77%) than among those in single-parent families (60%). Alcohol consumption in fathers, however, did not vary with the type of family (intact or step). Nonetheless, the proportion of mothers and fathers having consumed alcohol in the previous 12 months was higher in households with sufficient income than in those below the low-income cut-off.

As shown in Table 2.1, excessive consumption of alcohol (five drinks or more) at least once in the 12 months preceding the survey was more frequent in younger mothers and fathers than in older ones. Approximately one in four mothers under 25 years of age indicated having consumed five or more drinks on one occasion at least once compared to 13% or less in other mothers. In fathers, a little less than two-thirds (65%) of those under 25 years of age had consumed this quantity of alcohol in a single session, whereas this was the case for 55% or less in older fathers. Although this behaviour seemed less frequent at the upper end of the age scale, it should be noted that the percentage of fathers 40 years of age and over having drunk five drinks or more on the same occasion was still high (40%).

The proportion of mothers and fathers having consumed five drinks or more on the same occasion did not vary with educational level or type of family. However, household income was associated with excessive alcohol consumption, but only in the fathers. The proportion of fathers having drunk five drinks on one or more occasions was relatively higher in low-income households (53% vs. 40%).

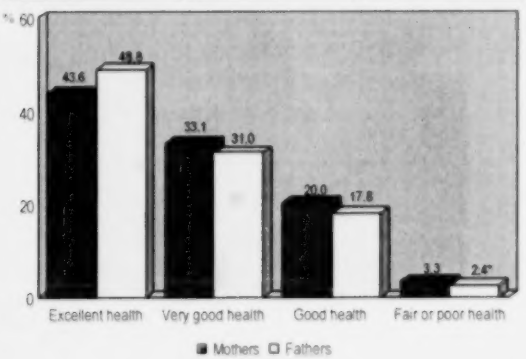
Although the percentages differed, the 1998 ÉLDEQ results confirm certain trends reported in the recent Statistical Report on the Health of Canadians (*Santé Canada*, 1999). For example, men most likely to smoke daily were those under 25 years of age and those with no high school diploma. Young mothers and those without a high school diploma also constitute groups at high risk of smoking daily. Consumption of alcohol was more frequent among men and parents with more education or in households above the low-income cut-off. In contrast, mothers and fathers under 25 years of age and fathers in low-income households were more likely to consume excessive quantities of alcohol on the same occasion.

12. Given the small number of respondent biological fathers who were single parents, only fathers living in two-parent families were included in the analysis.

3. Physical Well-Being of the Parents

The physical well-being of the parents was assessed with one question in the Adult Health section of the Paper Questionnaire Completed by the Interviewer (PQCI). The results presented in Figure 3.1 reveal that the majority of mothers (77%) and fathers (80%) considered themselves to be in excellent or very good health. Only a small percentage of parents, approximately 3%, assessed their health as fair or poor. Although the differences were minimal, the fathers presented, on the whole, a more favourable health profile than the mothers ($p < 0.001$; Figure 3.1). The health status perceived by both parents, however, was strongly associated. Compared to other mothers, those who reported being in excellent or very good health were significantly more likely to be living with a spouse/partner also presenting an optimum health profile (85% vs. 63%, $p < 0.001$; data not shown).

Figure 3.1
Distribution of Mothers and Fathers by Perceivend Health Status, 1998



* Coefficient of variation (CV) between 15% and 25%; interpret with caution.

Source: *Institut de la statistique du Québec, ÉLDEQ 1998-2002.*

Perceived health status was associated with a number of parental characteristics or the family environment. As shown in Table 4.1, only 62% of teenage mothers considered their health status to be excellent or very good, whereas this was the case for 80% of mothers 30 to 34 years of age. However, this percentage decreased to 68% among mothers 40 years of age and over. In contrast, a significantly higher proportion of fathers under 25 years of age (84%), than those 40 and over (67%) presented an excellent or very good general health status.

Similar to certain results presented in the Statistical Report on the Health of Canadians (*Santé Canada*, 1999), the ÉLDEQ 1998 data suggest that the perception of health status tended to be less favourable in older individuals. This ÉLDEQ result may in part be related to the fact that older mothers and fathers have, on average, a bigger family workload which translates into more fatigue. For example, more than half of mothers between 20 and 24 years of age (59%) were raising only one child, whereas conversely, approximately half (52%) of mothers 40 years of age and over were raising at least three children.[13]

It is noteworthy that the percentage of parents who reported having an excellent or very good health status varied with educational level. Among those with no high school diploma, 60% of mothers and 71% of fathers said they were in excellent or very good health, whereas this was the case for 89% of mothers and 86% of fathers who had a university degree. Furthermore, mothers in intact two-parent families (78%) were more likely than single-parent mothers (65%) to have reported being in excellent or very good health. With respect to household income, fewer mothers (64%) and fathers (72%) in households below the low-income cut-off described their health as excellent or very good compared to mothers and fathers (82%) in households with sufficient income (Table 4.1).

ÉLDEQ 1998 also examined long-term health problems in the parents such as migraine, back pain, hypertension and heart disease.[14] These are important problems because they can affect the quality of life of both parents and children, and indirectly, family relationships. Moreover, children of parents with certain chronic health problems such as allergies or asthma are more likely to suffer from these themselves in the course of their lives

13. Given the small numbers, the percentage for mothers 40 years of age or over should be interpreted with caution.

14. In ÉLDEQ, a long-term health problem was defined as one diagnosed by a health professional which had persisted for 6 months or more and would likely continue for another 6 months or more.

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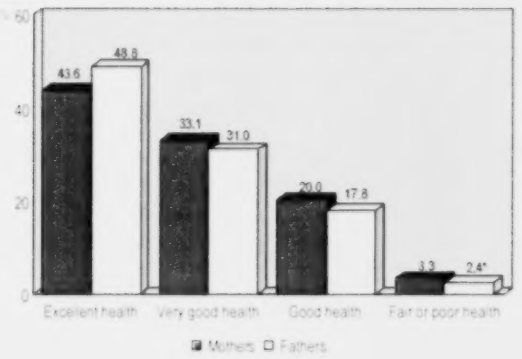
The physical well-being of the parents was assessed with one question in the Adult Health section of the Paper Questionnaire Completed by the Interviewer (PQCI). The results presented in Figure 3.1 reveal that the majority of mothers (77%) and fathers (80%) considered themselves to be in excellent or very good health. Only a small percentage of parents, approximately 3%, assessed their health as fair or poor. Although the differences were minimal, the fathers presented, on the whole, a more favourable health profile than the mothers ($p < 0.001$; Figure 3.1). The health status perceived by both parents, however, was strongly associated. Compared to other mothers, those who reported being in excellent or very good health were significantly more likely to be living with a spouse/partner also presenting an optimum health profile (85% vs. 63%, $p < 0.001$; data not shown).

Figure 3.1
Distribution of Mothers and Fathers by Perceivend Health Status, 1998



* Coefficient of variation (CV) between 15% and 25%; interpret with caution.

Source: *Institut de la statistique du Québec. ÉLDEQ 1998-2002*

Perceived health status was associated with a number of parental characteristics or the family environment. As shown in Table 4.1, only 62% of teenage mothers considered their health status to be excellent or very good, whereas this was the case for 80% of mothers 30 to 34 years of age. However, this percentage decreased to 68% among mothers 40 years of age and over. In contrast, a significantly higher proportion of fathers under 25 years of age (84%), than those 40 and over (67%) presented an excellent or very good general health status.

Similar to certain results presented in the Statistical Report on the Health of Canadians (*Santé Canada*, 1999), the ÉLDEQ 1998 data suggest that the perception of health status tended to be less favourable in older individuals. This ÉLDEQ result may in part be related to the fact that older mothers and fathers have, on average, a bigger family workload which translates into more fatigue. For example, more than half of mothers between 20 and 24 years of age (59%) were raising only one child, whereas conversely, approximately half (52%) of mothers 40 years of age and over were raising at least three children.[13]

It is noteworthy that the percentage of parents who reported having an excellent or very good health status varied with educational level. Among those with no high school diploma, 60% of mothers and 71% of fathers said they were in excellent or very good health, whereas this was the case for 89% of mothers and 86% of fathers who had a university degree. Furthermore, mothers in intact two-parent families (78%) were more likely than single-parent mothers (65%) to have reported being in excellent or very good health. With respect to household income, fewer mothers (64%) and fathers (72%) in households below the low-income cut-off described their health as excellent or very good compared to mothers and fathers (82%) in households with sufficient income (Table 4.1).

ÉLDEQ 1998 also examined long-term health problems in the parents such as migraine, back pain, hypertension and heart disease.[14] These are important problems because they can affect the quality of life of both parents and children, and indirectly, family relationships. Moreover, children of parents with certain chronic health problems such as allergies or asthma are more likely to suffer from these themselves in the course of their lives

13. Given the small numbers, the percentage for mothers 40 years of age or over should be interpreted with caution.

14. In ÉLDEQ, a long-term health problem was defined as one diagnosed by a health professional which had persisted for 6 months or more and would likely continue for another 6 months or more.

(Borish, 1999; Busse, 1999). According to the 1998 ÉLDEQ data, four in ten mothers and a little more than one in three fathers (34%) were suffering from a chronic health problem. In mothers, the three most frequent problems reported, were allergies (other than food) (19%), asthma or backache (*ex aequo*, 8%) and migraine (7%). In fathers, allergies (other than food) were also predominant (14%), followed by backache (9%) and asthma (5%). As could be expected, parents reporting a chronic health problem were less likely to describe their health as excellent or very good. Nearly two-thirds of mothers and fathers presenting a long-term health problem reported they were in good or excellent health compared to 84% of mothers and 87% of fathers not indicating such a condition.

4. Psychological Well-Being of the Parents

Depression is characterized by a persistent feeling of sadness often accompanied by feelings of helplessness, irritability and despair. A significant proportion of psychiatric hospitalizations and suicides are related to depression (*Santé Canada*, 1994). In Canada in 1996-1997, 8% of the female population 12 years of age and over and 5% of men in this same age group met sufficient criteria to be diagnosed as suffering from depression (*Santé Canada*, 1999).

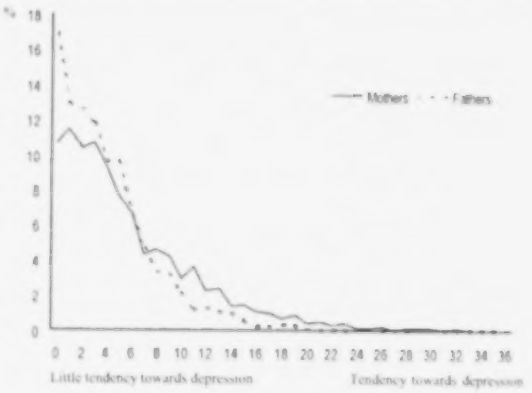
ÉLDEQ 1998 collected data on the mental health of the parents, mainly with regards to symptoms of depression. The 12 questions on this topic addressed to the mother were in the Computerized Questionnaire Completed by the Interviewer (CQCI), whereas fathers were asked to respond to these questions in the Self-Administered Questionnaire for the Father (SAQF).

These questions comprised an abridged version of the Depression Scale (CES-D) of the Center for Epidemiological Studies of the National Institute of Mental Health in the U.S. The scale, also used in the National Longitudinal Study of Children and Youth (NLSCY, Canada), was developed to measure the frequency of symptoms of depression in the general population. More specifically, it measured the presence and severity of symptoms associated with depression in the week preceding the survey.

Figure 4.1 presents the distribution of mothers and fathers according to the degree of depression they indicated experiencing in the week preceding the survey. As this Figure illustrates, both distributions are strongly skewed to the left, suggesting that the majority of parents of infants tended to experience few depressive symptoms.

The depression scale used in ÉLDEQ 1998 was not a screening test for clinical depression. However, it is possible to identify parents likely to meet the diagnostic criteria for a depressive disorder by selecting those who reported an elevated number of symptoms. In the following analysis, parents above the 90th percentile on the depression scale[15] were compared to other parents in order to examine if both groups differed with respect to certain characteristics.

Figure 4.1
Distribution of Mothers and Fathers by the Degree of Depression, 1998



Source: *Institut de la statistique du Québec, ÉLDEQ 1998-2002*

Table 4.1 shows that the degree of depression did not significantly vary with the age of the parents. The percentage of mothers on the high end of the depression scale was, however, inversely associated with the educational level attained. Mothers with no high school diploma were three times more likely (18%) than those with a university degree (6%) to report a high number of symptoms of depression.

15. Landy & Tam (1996) considered a result of 13 or higher in this abridged version of the CES-D as an indicator of the presence of moderate to severe depression. In ÉLDEQ 1998, approximately 10% of mothers and 4% of fathers obtained a score equal to or higher than 13 on the scale. Since the low percentage observed in the fathers did not permit further examination of potential associations with the characteristics retained, it was decided to include mothers and fathers above the 90th percentile in this analysis.

Tableau 4.1

Perceived Health Status and Symptoms of Depression in Mothers and Fathers, by Certain Sociodemographic Characteristics, 1998

	Perceived health excellent or very good		High number of symptoms of depression[1]	
	Mothers	Fathers	Mothers	Fathers
	%			
Agegroup[2]				
Under 20 yrs of age	62.4†		19.2**	
20-24 yrs	73.9	83.8†	14.3	15.5
25-29 yrs	78.8	81.3	10.8	9.4
30-34 yrs	79.8	82.7	9.1	11.6
35-39 yrs	72.7	77.2	10.1*	11.8*
40 yrs or +	68.2	66.6	18.1**	16.8*
Educational level				
No high school diploma	60.2†	71.2†	17.7†	12.5*
High school diploma	75.9	79.2	11.9	12.8
Vocational/technical diploma	72.8	74.8	12.5*	11.9*
College (junior) diploma	81.8	86.1	9.6*	13.0*
University degree	89.1	85.9	6.2*	9.1*
Type of family				
Intact two-parent	78.3†	80.3	9.7†	11.7
Step	74.3	76.3	11.1*	13.5*
Single-parent	65.2	--	24.8	--
Low-income household[3]				
Yes	64.2†	72.0†	19.0†	18.7†
No	82.0	82.1	8.4	10.0
Total				
n	**2,221**	**2,018**	**2,216**	**1,848**
%	**76.7**	**79.8**	**11.3**	**11.9**

Note : † indicates $p < 0.05$.

1. For a definition of the criterion used, see previous page.
2. Due to small numbers, fathers under 25 years of age were grouped into a single category.
3. According to the low-income cut-offs set by Statistics Canada for the reference year 1997 (based on 1992) (see No. 2 in this series of papers).

* Coefficient of variation (CV) between 15% and 25%; interpret with caution.

** Coefficient of variation (CV) higher than 25%; imprecise estimate for descriptive purposes only.

Source: *Institut de la statistique du Québec, ÉLDEQ 1998-2002.*

Single-parent mothers and those in families with an insufficient income were also more inclined to report an elevated level of depressive symptoms. In two-parent families, approximately one in ten mothers declared experiencing psychological distress; however, this was the case for one in four mothers in single-parent families. As illustrated in Table 4.1, compared to other mothers, those in low-income households were twice as likely to report a high number of symptoms of depression (19% vs. 8%).

The level of symptoms of depression reported by the mother was associated with that reported by the father. More than a quarter (27%) of mothers with strong tendencies towards depression were living with a spouse/partner who also declared a high level of psychological distress, whereas this was the case for only 10% of non-depressed mothers ($p < 0.001$; data not shown). As shown in Table 4.1, few factors were associated with a high number of symptoms in the fathers. The percentage of fathers at the high end of the depression scale did not vary with their age, educational level or type of family. However, nearly twice as many fathers in

households with insufficient income reported a high number of symptoms of depression compared to those in households above the low-income cut-off (19% vs. 10%).

Symptoms of depression observed in the parents were associated with other aspects of the infant's environment such as family functioning. Indeed, 30% of depressed mothers were in families described as dysfunctional[16] in terms of family relationships, compared to 4% of mothers with few symptoms of depression ($p < 0.001$; data not shown). Fathers who reported a high level of depression were also more likely to live in a dysfunctional family than those who had few symptoms of depression (13% vs. 4%; $p < 0.001$; data not shown). Finally, depressed mothers were more inclined to smoke daily compared to non-depressed ones (31% vs. 24%, $p < 0.05$; data not shown), though this was not the case for the fathers.

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16. Family functioning was established by using a scale administered to the PMK which contained 12 questions. According to the clinical threshold of family functioning set by researchers at the Chedoke-McMaster Hospital in Hamilton, Ontario (Cadman *et al.*, 1991), families obtaining a score equal to or higher than 15 on this scale can be considered as dysfunctional.

5. Conclusion

Data from the first year of ÉLDEQ 1998-2002 provide a portrait of the lifestyle habits and physical and psychological well-being of the parents of Québec infants who were 5 months of age in 1998. These data revealed that the majority of parents considered themselves to be in excellent or very good health. Approximately one third of the fathers and a quarter of the mothers were smoking cigarettes daily at the time of the survey, and the majority had consumed alcohol, to varying degrees, during the 12 months preceding the survey. In terms of their psychological well-being, the majority of parents seemed to experience few symptoms of depression.

Several factors increased the risk of a parent being in poor physical or psychological health or consuming more alcohol or tobacco products. For example, younger parents, those with less education or low household income, and single mothers were particularly at risk of being in poorer health or smoking daily. Younger parents and fathers in low-income households were more likely to consume excessive quantities of alcohol. With respect to the parents' psychological well-being, a tendency towards depression was more often observed in less educated mothers, single parent mothers and parents in low-income households.

The mental health of the parents is known to be associated with the developmental trajectory of children. Depression in the parent, for example, can significantly increase the risk of a child presenting internalizing and externalizing disorders (Bergeron *et al.*, 1997; Offord *et al.*, 1989). Moreover, other studies have revealed a higher prevalence of depression in single-parent families and socioeconomically disadvantaged circumstances (Beaudet, 1996; *Santé Canada*, 1999). Just like parental depression, poverty and single-parenthood are also risk factors associated with affective and behavioural adjustment in children (Lipman *et al.*, 1996; Offord & Lipman, 1996). The links between socioeconomic status, type of family, parental psychological well-being and the adjustment of children seem therefore complex. The influence of parental socioeconomic characteristics on child adjustment is probably indirect and mediated mostly by the parents' psychological stress, their mental health, the couple's relationship and the parent/child relationship (Jensen *et al.*, 1990; Offord, 1990). For example, living in a father-absent household, a family situation strongly associated with low-income and stress in the single parent (*Santé Canada*, 1999), may increase the likelihood that problems in the parent/child relationship exist and consequently be associated with the onset of adjustment problems in the child. Although, household income and type of family are often related, they appear, however, to have differential effects on the adjustment of the child. In accounting for these two risk factors, Pagani *et al.* (1997) showed that poverty may be more strongly associated with educational achievement in the child, whereas the type of family may be a better predictor of behavioural adjustment in the child. Moreover, poverty and the type of family are not independent of certain parental characteristics present before the birth of the child. The social adjustment of the parents in adolescence, for example, a subject of the second part of this paper, may be an important precursor of their future financial and family situation.

The longitudinal data of ÉLDEQ 1998-2002 will help identify how these multiple risk factors interact and influence child development. Furthermore, they will also provide a means of examining which characteristics of the child or his environment can protect against psychosocial maladjustment in a family context likely to compromise his development.

Parents' Health and Social Adjustment

Part II
Social Adjustment

1. Introduction

One of the major goals of the *Étude longitudinale du développement des enfants du Québec* (ÉLDEQ) (Quebec Longitudinal Study of Child Development in Québec) is to examine risk factors for the development of behavior problems from early infancy to school-entry and beyond. Another major and related goal is to examine risk and protective factors for school readiness.

Examining risk factors for the development of behavior problems in children is complicated by two factors. First, children who develop antisocial behaviors are at greatly increased risk for a number of poor adult outcomes. These include alcohol and drug use disorders, adolescent pregnancy, and dropping out of high school (Cassidy *et al.*, 1996; Robins, 1966; Robins & Price, 1991; Serbin *et al.*, 1991; Woodward & Fergusson, 1999; Zoccolillo *et al.*, 1992; Zoccolillo & Rogers, 1991). However, these poor adult outcomes are themselves risk factors for behavior or other problems in their own children. Second, transmission from biologic parent to child can occur through genes, family environment, or a combination of the two (Cadoret *et al.*, 1995; Langbehn *et al.*, 1998; Rutter *et al.*, 1990; Silberg *et al.*, 1996). Understanding familial resemblance for a behavior problem (for example, delinquency seen in the son of a father with a criminal record in a family living in poverty) requires a design that can tease apart genetic and environmental contributions.

To better determine risk factors for behavior problems in children it is therefore critical to have measures of the parents' own history of antisocial behavior, for two reasons. First, such a measure can be used to control for genetic transmission. For example, children born to teen mothers are more likely to exhibit antisocial behavior (Coley & Chase-Lansdale, 1998), but conduct problems in childhood are a risk factor for becoming a teen mother. Moreover, teen mothers have much higher rates of conduct problems than expected (Cassidy *et al.*, 1996; Serbin *et al.*, 1991; Woodward & Fergusson, 1999). However, not all teen mothers have a history of conduct problems. Examining if the children of teen mothers (and fathers) without a history of conduct problems, who are presumably at a lower genetic risk than children of teen parents who also have conduct problems, have increased behavior problems may help to tease apart genetic and environmental contributions. To do so, it is critical to have measures of antisocial behavior in both parents and a sizable sample of antisocial and non-antisocial teen mothers and adult mothers for comparisons.

Second, very little is known about the family environment of infants of parents with a history of behavior problems. The few studies addressing this issue have been longitudinal studies examining the parenting abilities of antisocial children who become parents themselves or comparing parents of antisocial children to those of children without conduct symptoms (Robins, 1966; Serbin *et al.*, 1998). No birth cohort epidemiologic study has assessed the antisocial history of both parents. In the absence of data on the family environment of parents with conduct problems it is difficult to plan specific intervention or prevention programs for these families.

In the ÉLDEQ study, parental history of antisocial behavior in childhood/adolescence and in adulthood was measured by self-report questionnaires separately for mothers (SAQM) and fathers or partners (SAQF). These questionnaires are described below along with the association between maternal and paternal conduct symptoms and potential risk factors for adverse child development when the infants were 5 months old. Only data on biologic parents (almost all of those who answered the SAQF or SAQM questionnaires) are presented.

2. Methods

There were several guiding principles for the questions for antisocial behavior in the parents. First, the study was interested in identifying those parents most likely to have a pattern of persistent and pervasive antisocial behavior. Previous research has shown that it is the number of child/adolescent antisocial behaviors rather than presence of any one behavior that is the best predictor of persistent and pervasive antisocial behavior in adulthood (Robins, 1966; Robins & Price, 1991; Robins & Regier, 1991). Therefore, several questions were asked and it is the sum of the number of child/adolescent behaviors that is of interest.

Second, classifying parents as "not conduct disordered" is as important as classifying those who clearly did have significant antisocial histories. Therefore, the behaviors asked about focused on symptoms with a mix of severity. Previous research has shown scaling in conduct disorder symptoms, such that less severe behaviors occur commonly in most 'conduct disordered" subjects with more severe behaviors added on (Robins, 1966; Robins & Regier, 1991). Therefore, by including less severe symptoms in the ÉLDEQ questionnaires, it is more likely that those parents who deny all symptoms do not have conduct disorder.

Third, epidemiologic studies have shown that most women and a large minority of men with pervasive and persistent antisocial behavior severe enough to meet the DSM-III criteria for Antisocial Personality Disorder do not have significant criminal histories. Furthermore, a significant proportion of men with arrest records are not persistently and pervasively antisocial (Robins & Regier, 1991). The symptoms presented in the ÉLDEQ questionnaires did therefore not focus exclusively on criminality.

Fourth, the symptoms and questions chosen were modified from the most commonly used structured psychiatric interview in the world: the NIMH-Diagnostic Interview Schedule (Helzer & Robins, 1988), and are based on the DSM-III (American Psychiatric Association, 1980) criteria. These symptoms also reflect current DSM-IV criteria for the diagnosis of Conduct Disorder and Antisocial Personality Disorder (American Psychiatric Association, 1994). It should be stressed, however, that it is not a goal of this study to obtain DSM-IV prevalence rates of disorder. Lastly, previous work has suggested some gender differences in the manifestation of antisocial behavior and so behaviors were chosen separately for fathers and mothers (Zoccolillo, 1993).

The measurement of child/adolescent and adult antisocial behaviors in the ÉLDEQ was limited by financial and time constraints to (1) self-reported questionnaires and (2) eight questions for men and nine for women. Because it is important to clearly distinguish between child and adult behaviors, the questions asking about child/adolescent behaviors were prefaced by "Before the end of high school did you ..." Adult behaviors were prefaced by "Since leaving or finishing school ..."

For the mothers, the following five child/adolescent antisocial behaviors were asked about: stealing more than once; having been in more than one fight; having been arrested by police or in trouble with Youth Protection because of misbehavior; truancy at least twice in one year; and having run away from home overnight. For the fathers, there were four questions about child/adolescent antisocial behaviors: stealing more than once; having often started fights; having been arrested by police or in trouble with Youth Protection because of misbehavior; and having been suspended or expelled from school. The four adult antisocial behaviors mothers were asked about are: having been fired from a job; arrested for non-traffic offense; or in trouble at work, with the police, or family; having hit or thrown things at spouse;[1] and having had an accident due to drugs or alcohol. Fathers were asked the following five questions about adult antisocial behavior: having been fired from a job more than once; arrested for non-traffic offense; or in trouble at work, with the police, or family; having more than once got into a fight or attacked or injured someone; and having had an accident due to drugs or alcohol.

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1. In a pilot study, both men and women were asked the more general question on aggression "more than once got into a fight or attacked or injured someone." However, very few women answered positively to such a question so the question on aggression towards the spouse was substituted for the mothers.

3.1 Maternal Antisocial Behaviors.

Of 2,219 biologic mothers[2] living in the household,[3] 2,137 (96.3%) returned the self-administered questionnaire. Of these 2,137 mothers, 2,105 answered all 5 of the conduct (child/adolescent) symptoms; 14 answered 4 of the 5, 3 answered 3 of the 5, and 15 did not answer any. The sum of the number of conduct symptoms is based on the 2,119 who answered at least 4 out of the 5 questions. Results are shown in Table 3.1 and indicate that, with the exception of truancy, which was very common (48%), and the behavior of "stealing more than once" (18%), all of the other behaviors were relatively infrequent, that is reported by 10% or less of the mothers. The prevalence of having 3 or more conduct symptoms (similar to the DSM-IV cut-off for conduct disorder) was 6%, which is within the range of prevalence rates found in other epidemiologic studies (Zoccolillo, 1993).

The adult antisocial behaviors are also shown in Table 3.1. The prevalence rate of the adult behaviors is much lower than the one observed for conduct symptoms. Whereas only 19% of the mothers declared having experienced at least one of the adult antisocial symptoms, more than half of the mothers (55%) had at least on of the child/adolescent conduct symptoms. The prevalence rate of 3 or 4 adult behaviors is very low (0.3%).

A key check of the validity of the conduct symptoms is whether they are associated with adult symptoms. Previous studies have shown 1) adults with multiple adult antisocial behaviors are highly likely to have a history of conduct problems; 2) children with conduct problems are more likely to show adult antisocial symptoms, but many do not (Robins, 1966; Robins, 1978; Robins & Price, 1991; Zoccolillo *et al.*, 1992).

Table 3.1
Conduct and Adult Antisocial Symptoms in Mothers, 1998

	n	%
Conduct symptoms (before the end of high school)		
Steal more than once	378	17.8
Been in more than one fight that she started	70	3.3
Involved with Youth Protection or the police because of own misbehavior	85	4.0
Skip school more than twice in one year	1,006	47.6
Runaway from home overnight	204	9.6
Number of conduct symptoms:		
None	955	45.1
One	759	35.8
Two	276	13.0
Three	93	4.4
Four or five	35	1.7*
Total	**2,118**	**100.0**
Adult antisocial behaviors (after finishing or quitting school)		
Fired from a job	199	9.5
Arrested[1]	31	1.5
Hit or threw objects at husband/partner	223	10.6
Trouble at work, with police, with family, or traffic accident due to drugs or alcohol	28	1.3
Number of adult antisocial symptoms		
None	1,711	80.9
One	338	16.0
Two	61	2.9
Three or four	6	0.3**
Total	**2,116**	**100.0**

1. Excluding traffic offenses.
* Coefficient of variation (CV) between 15% and 25%; interpret with caution.
** Coefficient of variation (CV) higher than 25%, imprecise estimate for descriptive purposes only.

Source : *Institut de la statistique du Québec, ÉLDEQ 1998-2002.*

Table 3.2 shows the relationship between the number of conduct problems and the number of adult antisocial symptoms. The association is significant and follows the pattern noted above. More precisely, 85% of the mothers having reported 2 to 4 adult antisocial symptoms had experienced at least one child/ dolescent conductsymptom whereas the latter was only the case of half of the mothers with no adult antisocial symptoms. Similarly, 41%

2. The data presented here in this Number were weighted to represent the initial sample size.

3. Among the 2,223 infants in the ÉLDEQ study, a very small percentage (0.2%)were living in foster families or with the father only, at the time of the survey.

of mother with 3 to 5 conduct symptoms reported one or more adult antisocial symptoms whereas only 11% of mothers with no conduct symptoms did so.

Table 3.2
Conduct Symptoms by Number of Adult Antisocial Symptoms for the Mothers, 1998[1]

	Conduct symptoms[2]				Total	
	0	1	2	3-5	n	%
	%					
Adult antisocial symptoms[3]						
0	49.5	34.7	11.4	4.3	**1,705**	**100.0**
	88.7	78.4	70.3	58.6	--	**80.8**
1	28.8	43.0	19.0	9.2*	**337**	**100.0**
	10.2	19.2	23.2	24.2*	--	**16.0**
2-4	14.7**	26.5**	26.5**	32.4*	**68**	**100.0**
	1.1**	2.4**	6.5**	17.2*	--	**3.2**
Total						
n	**951**	**755**	**276**	**128**	**2,110**	--
%	**45.1**	**35.8**	**13.1**	**6.1**	-	**100.0**

1. $p < 0.001$.
2. To obtain 100%, add up the 2nd row of each category vertically.
3. To obtain 100%, add up the 1st row of each category horizontally.
* Coefficient of variation (CV) between 15% and 25%, interpret with caution.
** Coefficient of variation (CV) higher than 25%, imprecise estimate for descriptive purposes only.

Source : *Institut de la statistique du Québec, ÉLDEQ 1998-2002.*

3.2 Paternal Antisocial Symptoms

Of the 2,015 biologic fathers living in the household,[4] 1,842 (91.4%) returned a self-administered questionnaire. Of these, 1826 answered all the conduct symptoms, another 9 answered 3 of the 4, and 7 answered 2 or less. The sum of the number of conduct symptoms is based on the 1,835 biologic fathers who answered at least 3 out of the 4 questions. Results are shown in Table 3.3. The majority of the fathers had no symptoms (58%), and the prevalence of having 3 or 4 conduct symptoms (4.1% and 1,5% respectively) is in the range of, or even somewhat lower than figures reported in previous epidemiologic studies (Zoccolillo, 1993).

If the 1,842 fathers living in the household and having returned the self-complete questionnaire, 1,824 answered all 4 of the adult antisocial symptoms, 10 answered 3 of the 4, and 8 answered only one or none. The sum of the number of adult symptoms is based on data provided by the 1,834 biologic fathers who answered at least 3 out of the 4 questions. Results for the adult antisocial symptoms are shown in Table 3.3. Having multiple adult antisocial symptoms was relatively uncommon in these fathers: only 1.9% of the fathers reported 3 or 4 of the measured symptoms.

4. Biologic fathers not living in the home (9%) but who had contact with the infant at least once a month were also eligible for completion of the SAQF. However, because less than 50% of these fathers returned a SAQF, their responses cannot be weighted and are not presented here.

Table 3.3

Conduct and Adult Antisocial Symptoms in Fathers in Two-Parent Families, 1998

	n	%
Conduct symptoms (before the end of high school)		
Steal more than once	496	27.1
Often in fights that he started	184	10.0
Involved with Youth Protection or the police because of your own misbehavior	159	8.7
Expelled or suspended from school	368	20.0
Number of conduct symptoms:		
None	1,067	58.2
One	457	24.9
Two	208	11.3
Three	75	4.1
Four	28	1.5*
Total	**1,835**	**100.0**
Adult antisocial behaviors (after finishing or quitting school):		
Fired from a job more than once	105	5.7
Arrested[1]	190	10.4
More than once was in fights, or attacked someone	132	7.2
Trouble at work, with police, with family, or traffic accident due to drugs or alcohol	106	5.8
Number of adult antisocial symptoms:		
None	1,463	79.7
One	251	13.7
Two	84	4.6
Three	30	1.6*
Four	6	0.3**
Total	**1,834**	**100.0**

1. Excluding traffic offenses
* Coefficient of variation (CV) between 15% and 25%, interpret with caution.
** Coefficient of variation (CV) higher than 25%, imprecise estimate for descriptive purposes only.

Source : *Institut de la statistique du Québec, ÉLDEQ 1998-2002.*

Table 3.4 shows the relationship between conduct symptoms and adult symptoms. It follows the same expected pattern as for the mothers.

Table 3.4

Number of Conduct Symptoms by Number of Adult Antisocial Symptoms for Fathers in Two-Parent Families, 1998[1]

	Conduct behaviors[2]				Total	
	0	1	2	3 or 4	n	%
	%					
Adult antisocial behaviors[3]						
0	64.5	22.7	9.6	3.1	1,461	100.0
	88.5	73.0	67.3	45.1	–	79.8
1	38.6	33.9	15.9*	11.6**	251	100.0
	9.1	18.7	19.2*	28.4**	–	13.7
2	25.0*	31.0*	22.6*	21.4*	84	100.0
	1.9*	5.7*	9.1*	17.6*	–	4.6
3 or 4	14.3**	34.3**	25.7**	25.7**	35	100.0
	0.5**	2.6**	4.3**	8.8**	–	1.9
Total						
n	1,066	455	208	102	1,831	–
%	58.2	24.8	11.4	5.6	–	100.0

1. $p < 0.001$
2. To obtain 100%, add up the 2nd row of each category vertically.
3. To obtain 100%, add up the 1st row of each category horizontally.
* Coefficient of variation (CV) between 15% and 25%, interpret with caution.
** Coefficient of variation (CV) higher than 25%, imprecise estimate for descriptive purposes only.

Source : *Institut de la statistique du Québec, ÉLDEQ 1998-2002.*

3.3 Parental Antisocial Behavior and Certain Risk Factors for Child Development.

A key question is which combination of the 9 antisocial behaviors for women and 8 for men should be used to define parents as "antisocial." In the section below, the number of conduct symptoms during childhood and adolescence was used rather than the adult symptoms as the measure of parental antisociality, for several reasons. First, all subjects have passed through the age of risk for these conduct symptoms, but many are still young adults and still at risk for the adult symptoms. Second, studies have documented that most pervasively and persistently antisocial adults have had significant behavior problems in childhood. Subjects who have passed through childhood and adolescence without developing conduct symptoms are therefore very unlikely to develop persistent and pervasive adult antisocial behavior (Robins, 1966;

Robins, 1978; Zoccolillo, 1993). Third, pregnancy and parenthood may affect the likelihood of adult symptoms. For example, mothers may have no work experience and are thus not at risk for being fired from a job. Fourth, there were far fewer subjects with several adult symptoms than with several child/adolescent conduct symptoms. Lastly, with respect to intervention or prevention programs, it is much easier to select subjects with a past history of conduct symptoms than to select subjects on adult symptoms, which may occur after the birth of the first child.

3.3.1 Maternal and Paternal Conduct Symptoms and Certain Risk Factors for Child Development

- The mothers

The relationship between the number of maternal conduct symptoms and various risk factors for child development is shown in Table 3.5. Several conclusions can be drawn from the data. For example, the family environment of infants with mothers with 3 to 5 conduct symptoms (around 6% of infants) appears to be clearly more adverse than the one of infants in families where the mother had no conduct symptoms.

These infants are more likely to be born to a young or teenage mother (38% vs. 16%); to have been exposed to cigarette smoke in-utero (50% vs. 15%) and currently (41% vs. 15%); to have been exposed to illegal drugs in-utero (6% vs. 0.2%); to have no biologic father present (19% vs. 7%); to have a mother with less than a high school education (32% vs. 14%); to be living in families with a low income (42% vs. 25%); and to have a mother who reports more alcohol (32% drunk in past year vs. 9%) and illegal drug use (13% vs. 1.2%) in the 12 months preceding the survey. Furthermore, as Table 3.5 shows, the prevalence of certain behaviors such as smoking (prenatally and afterwards) increases significantly with the presence of even only one conduct symptom: almost twice as many mothers with one conduct symptom reported smoking during pregnancy compared to those without conduct symptoms (29% vs. 15%).

Table 3.5
Risk Factors Among Mothers (%) by the Number of Maternal Conduct Symptoms, 1998

	Number of conduct symptoms				χ^2
	0	1	2	3-5	
	%				
Sociodemographic characteristics					
Current age <20	1.6**	3.5*	2.9**	11.6**	$p < 0.01$
Current age<25	16.2	25.8	32.0	37.7	$p < 0.001$
Had first child when age 19 or younger	7.3	12.9	13.4*	24.7*	$p < 0.001$
No high school degree	13.5	18.5	18.8	32.2	$p < 0.001$
Biologic father no longer in the home	7.1	8.6	10.2*	19.3*	$p < 0.05$
Low-income household[1]	24.5	24.0	28.4	41.7	$p < 0.01$
Substance use					
Currently daily smoker	14.7	29.1	37.1	40.5	$p < 0.001$
Used illegal drugs in the past 12 months[2]	1.2**	3.7	4.2**	13.0*	$p < 0.001$
Excessive alcohol consumption (5 or more drinks on one occasion) in past 12 months	9.2	16.2	23.5	31.8	$p < 0.001$
Lifestyle habits during pregnancy					
Smoked	15.0	29.4	38.8	50.2	$p < 0.001$
Used illegal drugs	0.2**	2.1**	2.0**	5.9**	$p < 0.001$

1. According to the low-income cut-offs set by Statistics Canada for the reference year 1997 (based on 1992) (see No. 2 in this series of papers).
2. From the following list: inhalants; marijuana; cocaine; amphetamines; heroin; opiates; hallucinogens; tranquilizer drugs without a prescription such as barbiturates, Ativan, or Valium; extasy.

* Coefficient of variation (CV) between 15% and 25%; interpret with caution.

** Coefficient of variation (CV) higher than 25%; imprecise estimate for descriptive purposes only.

Source : *Institut de la statistique du Québec, ÉLDEQ 1998-2002.*

There were some interesting and significant differences on the Parental Perceptions Behaviours Regarding the Infant Scale (PPBS) for the coercive scale items by the number of maternal conduct behaviors.[5] For each item of the PPBS, mothers were asked to respond on an 11-point scale. An examination of the mothers' responses revealed that mothers tended to generally use the scale point "Not at all what I did" for coercive behaviors. However, the proportion of mothers using this scale point appears to decrease as the number of conduct symptoms increases (Table 3.6). For example, 63% of mothers with no conduct symptoms chose the response "I have left my baby alone in his/her bedroom when he/she was particularly fussy," whereas this answer was chosen by only 42% of mothers with 3 to 5 conduct disorder symptoms. As Table 3.6 shows, one question (lost temper) showed a similar trend but the differences were not significant. The other two items (spanking baby; shaking baby) were rarely endorsed by any of the mothers.

However, when examining several items of the PPBS reflecting maternal warmth such as: "I take a really great pleasure in "talking" (babbling, using baby-talk) with my baby," "I often feel the urge to kiss my baby," "I usually feel very great pleasure when holding my baby in my arms," "I feel a very intense joy and I sort of "melt down" whenever my baby smiles at me," there were no differences by the number of conduct symptoms (data not shown). There was also no significant relationship between maternal conduct symptoms and the maternal score on the difficult temperament infant scale (data not shown).

Table 3.6

Percent of Mothers Reporting "Not at all what I did" on the Coercive Parenting Scale Items (PPBS)[1] by the Number of Conduct Symptoms, 1998

	Number of conduct symptoms				χ^2
	0	1	2	3-5	
	%				
I have been angry with my baby when he/she was particularly fussy.	47.0	39.3	39.7	33.2	$p < 0.01$
When my baby cries, he gets on my nerves.	53.0	47.6	47.2	40.2	$p < 0.05$
I have raised my voice or shouted at my baby when he/she was particularly fussy.	63.1	58.6	56.8	47.2	$p < 0.01$
I have spanked my baby when he/she was particularly fussy	95.8	97.3	98.0	96.7	not signif.
I have lost my temper when my baby was particularly fussy	77.3	75.2	71.6	67.0	not signif.
I have left my baby alone in his/her bedroom when he/she was particularly fussy.	62.6	54.5	54.0	41.6	$p < 0.001$
I have shaken my baby when he/she was particularly fussy	92.1	94.6	92.7	95.4	not signif.

1. Parental Perceptions and Behaviours Regarding the Infant Scale (PPBS).

Source : *Institut de la statistique du Québec. ÉLDEQ 1998-2002*

- The fathers

The association between paternal conduct symptoms and certain risk factors present in the infant's environment is shown in Table 3.7. The association of child/adolescent conduct symptoms with adult symptoms is also shown.

The findings are similar to those observed among the mothers. Fathers with at least 3 conduct symptoms, relative to fathers with no conduct symptoms, were more likely to be younger, less educated, unemployed, to smoke cigarettes concurrently, and to have higher rates of drunkenness and illegal drug use in the

5. For more details on this scale, which was part of the self-administered questionnaire (SAQM) for the mother, see number 10 in the present collection.

12 months preceding the survey. With respect to the association between conduct symptoms and adult antisocial behaviors, the data indicate that, for example, only about 3% of fathers with no conduct symptoms compared to 35% of those with 3 to 4 conduct symptoms reported having been involved in a fight more than once or attacked or injured someone. Similar findings emerged for other adult symptoms such as having been arrested other than for traffic violations (5% vs. 32%).

The fathers also completed the PPBS and infant temperament scale. There was no consistent interpretable relationship between the scores on the coercive items for the PPBS and the number of paternal conduct symptoms. The perception of fathers concerning the temperament of their infant also did not differ significantly by the number of paternal conduct symptoms (data not shown).

Table 3.7
Risk Factors (%) by the Number of Paternal Conduct Symptoms in Two-Parent Families, 1998

	Number of conduct symptoms				χ^2
	0	1	2	3-4	
	%				
Sociodemographic characteristics					
Current age<25	6.9	6.6*	15.0*	17.1*	$p < 0.01$
No high school degree	13.2	17.6	24.6	25.6*	$p < 0.001$
Unemployed	11.6	11.4	18.0*	20.3*	$p < 0.05$
Low-income household[1]	19.6	20.4	25.2	30.7	not signif.
Substance use					
Currently daily smoker	21.5	33.8	42.8	55.3	$p < 0.001$
Used illegal drugs in the past 12 months[2]	4.6*	7.6*	11.0*	20.6*	$p < 0.001$
Excessive alcohol consumption (5 or more drinks on one occasion) in past 12 months	44.3	56.2	57.1	68.4	$p < 0.001$
Adult antisocial behaviors					
Fired more than once from a job	3.3*	8.6*	8.3*	13.4*	$p < 0.001$
Arrested[3]	5.3	12.6	21.1	31.6	$p < 0.001$
Involved in a fight, or attacked or injured someone more than once	2.8*	9.1*	12.6*	34.5	$p < 0.001$
Trouble at work, with police, with family or traffic accident due to drugs or alcohol	3.0*	8.0*	11.0*	13.8**	$p < 0.001$
Mother had 2 or more conduct symptoms	12.9	20.0	30.8	30.7*	$p < 0.001$

1. According to the low-income cut-offs set by Statistics Canada for the reference year 1997 (based on 1992) (see No. 2 in this series of papers).
2. From the following list: inhalants; marijuana; cocaine; amphetamines; heroin; opiates; hallucinogens; tranquilizer drugs without a prescription such as barbiturates, Ativan, or Valium; extasy.
3. Excluding traffic offenses.

* Coefficient of variation (CV) between 15% and 25%; interpret with caution.

** Coefficient of variation (CV) higher than 25%; imprecise estimate for descriptive purposes only.

Source : *Institut de la statistique du Québec, ÉLDEQ 1998-2002.*

3.4 Assortative Mating

A number of studies have found that parents with antisocial behaviors are more likely to mate with other antisocial parents (Krueger *et al.*, 1998). In this sample, examining this association is complicated because the greater the number of conduct symptoms of the mother the more likely that the father was not living in the household and did not return the SAQF. However, mothers who declared that the father was no longer in the home were asked to complete a questionnaire on the father's antisocial behaviors, with questions identical to those in the questionnaire filled out by fathers in the home. Unfortunately, analyses of this data is more complicated because of the high rates of missing data (see number 1 in this series of papers) and for this reason will be undertaken at a later date. At the present, however, the data can be examined by asking whether there exists a relationship between the number of conduct symptoms in fathers and maternal conduct symptoms in two-parent families. The data presented in Table 3.7 provide clear evidence for assortative mating: fathers with 2 or more conduct symptoms were much more likely to mate with women who had at least 2 conduct symptoms than fathers with no conduct symptoms.

4. Conclusion

At around 5 months of age, infants of parents with multiple conduct symptoms are much more at risk for adverse outcomes than infants with parents with no or 1 conduct symptoms. There are several implications of these findings.

First, by measuring maternal and paternal conduct symptoms along with other risk factors it is possible to better control for genetic effects within families with antisocial parents in order to examine a number of putative risk factors for conduct symptoms, such as smoking, poverty, and coercive parenting practices. Furthermore, the questionnaires used are simple and self-administered and can be incorporated at little expense in other longitudinal studies.

Second, the risk carried by parental conduct symptoms is multi-faceted. This multi-faceted risk may explain some of the co-morbid non-antisocial behaviors often seen in association with conduct problems. For example, the association of maternal conduct symptoms with prenatal smoking may explain associations between conduct problems in their offspring and their learning problems or neuropsychologic dysfunction, both of which have been associated with prenatal smoking (Fried, 1995; Olds, 1997). This also suggests that intervention programs need to cover multiple risks. While this study has found that maternal conduct symptoms are associated with coercive parenting, an intervention program that focuses only on such parenting may have considerable difficulty overcoming other effects such as prenatal smoking and assortative mating.

Third, the association of maternal conduct symptoms with coercive parenting but not warmth or perception of infant temperament has two implications. On the one hand, for at least some mother-infant dyads, it may not be infant difficult temperament that begins a cycle of coercive interactions but rather maternal irritability or intolerance of normal infant behavior. On the other hand, as antisocial mothers, whose infants are presumably the most at risk, did not differ from others with respect to the degree of affection expressed for the infant, evaluations of maternal competence should include items measuring intolerance for infant behaviors such as crying.

Lastly, the ÉLDEQ data indicate that 6% of the 5-month-old infants have a mother with at least 3 conduct symptoms. An equivalent proportion of infants living in two-parent families have a father presenting an antisocial profile. It is noteworthy that 29% of the children with non-missing fathers had at least one parent with 2 or more conduct symptoms (data not shown). This is a substantial proportion of the population. At present, no intervention or prevention program has specifically targeted parents with conduct symptoms, even though their children are clearly at high risk. This study provides specific information that can be used for planning intervention and prevention studies.

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Glossary

Centre de la petite enfance	Child-care centre
Commission d'accès à l'information du Québec - CAI	Québec Access to Information Commission
Conseil québécois de la recherche sociale (CQRS)	Social Research Council of Québec
Direction de la méthodologie et des enquêtes spéciales, ISQ	Methodology and Special Surveys Division, ISQ
Direction de la santé publique de la Régie régionale de la santé et des services sociaux de Montréal-Centre	Public Health Department, Montréal-Centre Regional Health Board
Direction de la technologie et des opérations statistiques, ISQ	Technology and Statistical Operations Division, ISQ
Direction des normes et de l'information, ISQ	Standards and Information Division, ISQ
Direction Santé Québec, ISQ	Health Québec Division
Étude des jumeaux nouveaux-nés au Québec - ÉJNQ	Québec Study of Newborn Twins
Fichier maître des naissances	Master Birth Register
Fonds de la recherche en santé du Québec (FRSQ)	Health Research Fund of Québec
Fonds pour la formation de chercheurs et l'aide à la recherche (FCAR)	Researcher Education and Research Assistance Fund
Groupe de recherche sur l'inadaptation psychosociale chez l'enfant - GRIP	Research Unit on Children's Pyschosocial Maladjustment
Institut de la statistique du Québec, ISQ	Québec Institute of Statistics
La Politique Familiale	Policy on Families
Le Rapport Bouchard (1991) « Un Québec fou de ses enfants »	The Bouchard Report, 1991: A Québec in Love with its Children
Les Priorités nationales de santé publique	Priorities for Public Health
ministère de l'Éducation	Ministry of Education
ministère de la Famille et de l'Enfance	Ministry of Family and Child Welfare
ministère de la Justice	Ministry of Justice
ministère de la Recherche, Science et Technologie	Ministry of Research, Science and Technology
ministère de la Santé et des Services sociaux du Québec (MSSS)	Ministry of Health and Social Services of Québec
ministère de la Sécurité publique	Ministry of Public Security
ministère de la Solidarité sociale	Ministry of Social Solidarity - formerly Income Security (Welfare)
Politique de la santé et du bien-être	Policy on Health and Well-Being
Service de la recherche	Research services
Service de support aux opérations de la Régie de l'assurance-maladie du Québec - RAMQ	Operations Support Section of the Québec Health Insurance Board

List of Papers in Volume 1 of this Series

This paper is one of a series comprising Volume 1 of: JETTÉ, M., H. DESROSIERS, R. E. TREMBLAY and J. THIBAULT (2000). *Longitudinal Study of Child Development in Québec (ÉLDEQ 1998-2002)*, Québec, Institut de la statistique du Québec, Vol. 1.

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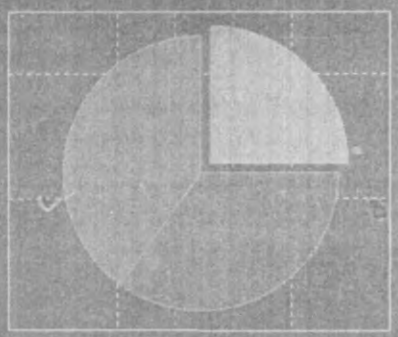
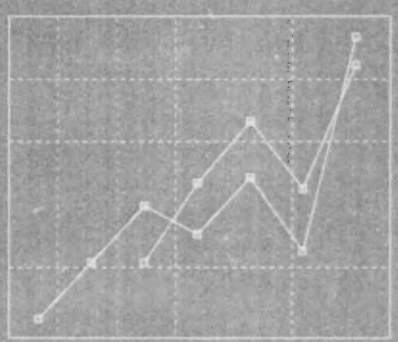
Parents' lifestyle habits as well as their physical and psychological well-being play a significant role in child development. The first part of this paper describes the prevalence of smoking and alcohol consomption among parents of Quebec infants and provides a profile of their health and mental status. Associations of these characteristics with various sociodemographic characteristics such as family type and age, educational level and income of the parents are then examined.

The second part of this publication presents previously unpublished data on the social adaptation of parents in Québec. Antisocial behaviors dring childhood, adolescence and/or adulthood are examined to estimate the number of parents presenting an antisocial profile. Families with mothers or fathers who themselves had conduct problems are compared to families where parents did not have a history of antisocial symptoms on a number of risk factors in the child's environment known to compromise child development. Results from this study will be useful for intervention strategies aimed at 1) reducing the inter-generational transmission of problem behavior; 2) decreasing the risk of adverse outcomes in children of parents with a history of conduct problems; and 3) promoting healthy parenting behaviors in at-risk adolescents.





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